



‘समानो मन्त्रः समितिः समानी’

UNIVERSITY OF NORTH BENGAL

B.A. Honours 3rd Semester Examination, 2021

CC7-PHILOSOPHY

WESTERN LOGIC-II

Time Allotted: 2 Hours

Full Marks: 60

The figures in the margin indicate full marks.

SECTION-I

1. Answer any **four** questions from the following: 3×4 = 12
- (a) What is CNF? Give example.
- (b) What do you mean by Inductive generalization?
- (c) What is decision procedure?
- (d) What is Mill's formulation of the method of difference?
- (e) Transform the following stroke function into statement form:
 $(p/q)/(p/p)$
- (f) When an argument is valid in truth tree?

SECTION-II

2. Answer any **four** questions from the following: 6×4 = 24
- (a) Transform the following into stroke function: 3+3
- (i) $(A \supset B) \vee C$
- (ii) $(A \sim B) \supset C$
- (b) Prove the invalidity of the following: 3+3
- (i) $(x)(Ex \supset \sim Fx)$
 $(x)(Fx \supset Gx)$
 $\therefore (x)(Gx \supset \sim Ex)$
- (ii) All generals are handsome. Some intellectuals are handsome. Therefore some generals are intellectuals. (Gx, Hx, Ix)
- (c) Discuss a-priori theory of Probability. 6
- (d) What is meant by crucial experiment? Discuss. 6

- (e) Transform the following into CNF and DNF. 3+3

$$p \vee q \vee r$$
- (f) Calculate the Probability of the following: 3+3
- (i) What is the Probability of getting tails everytime in three tosses of a coin?
 - (ii) What is the Probability of getting Nine (9) in throwing two dies at a time?

SECTION-III

3. Answer any **two** questions from the following: 12×2 = 24
- (a) Construct formal proof of validity for the following: 4+4+4
- (i) $(x)(Vx \supset Wx)$
 $(x)(Wx \supset \sim Xx) / \therefore (x)(Xx \supset \sim Vx)$
 - (ii) $(\exists x)(Px \cdot \sim Qx)$
 $(x)(Px \supset Rx) / \therefore (\exists x)(Rx \cdot \sim Qx)$
 - (iii) All jesters are knaves. No knaves are lucky. Therefore, no jesters are lucky.
 (Jx, Kx, Lx)
- (b) Test the validity or invalidity of the following arguments by truth-tree method: 4+4+4
- (i) $A \rightarrow B$
 $B \rightarrow C$
 $C \rightarrow D / \therefore A \rightarrow D$
 - (ii) $A \rightarrow B$
 $\neg A \rightarrow C$
 $\neg B / \therefore \neg C$
 - (iii) We shall swim even if it rains.
 $\therefore$ We shall swim.
- (c) State and explain Method of Agreement with example. Is it a method of Proof? Explain. 8+4
- (d) Explain the different criteria that are commonly used in judging the acceptability of a hypothesis. 12

——x——